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04.2007	

Gasoline demolition hammer

BH 24...

Operator's Manual

Important information

This machine has been provided with an EPA-certified engine.

Additional information can be found in the engine manufacturer's notes.

WARNING

Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Caution

This engine is an EPA engine.
Adjusting the engine speed will interfere with EPA certification and the emissions.
Only authorized personnel can make adjustments to this engine.
Please contact your nearest engine dealer or your Wacker Dealer for more information.

Emission Control System Information

Source of Emissions

The combustion process produces carbon monoxide, oxides of nitrogen, and hydrocarbons. Control of hydrocarbons and oxides of nitrogen is very important because, under certain conditions, they react to form photochemical smog when subjected to sunlight. Carbon monoxide does not react in the same way, but it is toxic.

Wacker utilizes lean carburetor settings and other systems to reduce the emissions of carbon monoxide, oxides of nitrogen, and hydrocarbons.

The U.S. and California Clean Air Acts

EPA and California regulations require all manufacturers to furnish written instructions describing the operation and maintenance of emission control systems.

The following instructions and procedures must be followed in order to keep the emissions from your Wacker engine within the emissions standards.

Tampering and Altering

Tampering with or altering the emission control system may increase emissions beyond the legal limit. Among those acts that constitute tampering are:

- Removal or alteration of any part of the intake, fuel, or exhaust systems.
- Altering or defeating the speed-adjusting mechanism to cause the engine to operate outside its design parameters.

Problems That May Affect Emissions

If you are aware of any of the following symptoms, have your engine inspected and repaired by your servicing dealer.

- Hard starting or stalling after starting.
- Rough idle.
- Misfiring or backfiring under load.
- Afterburning (backfiring).
- Black exhaust smoke or high fuel consumption.

Replacement Parts

The emission control systems on your Wacker engine were designed, built, and certified to conform with EPA and California emissions regulations. We recommend the use of genuine Wacker parts whenever you have maintenance done. These original-design replacement parts are manufactured to the same standards as the original parts, so you can be confident of their performance. The use of replacement parts that are not of the original design and quality may impair the effectiveness of your emission control system.

A manufacturer of an aftermarket part assumes the responsibility that the part will not adversely affect emission performance. The manufacturer or rebuilder of the part must certify that use of the part will not result in a failure of the engine to comply with emission regulations.

Maintenance

Follow the maintenance schedule. Remember that this schedule is based on the assumption that your machine will be used for its designed purpose. Sustained high-load or high-temperature operation, or use in unusually wet or dusty conditions, will require more frequent service.

OXYGENATED FUELS

Some conventional gasolines are being blended with alcohol or an ether compound. These gasolines are collectively referred to as oxygenated fuels. To meet clean air standards, some areas of the United States and Canada use oxygenated fuels to help reduce emissions.

If you use an oxygenated fuel, be sure it is unleaded and meets the minimum octane rating requirement.

Before using an oxygenated fuel, try to confirm the fuel's contents. Some States / Provinces require this information to be posted on the pump.

The following are EPA-approved percentages of oxygenates:

ETHANOL - (ethyl or grain alcohol) 10% by volume. You may use gasoline containing up to 10% ethanol by volume. Gasoline containing ethanol may be marketed under the name "Gasohol".

MTBE - (methyl tertiary butyl ether) 15% by volume. You may use gasoline containing up to 15% MTBE by volume.

METHANOL - (methyl or wood alcohol) 5% by volume. You may use gasoline containing up to 5% methanol by volume, as long as it contains cosolvents and corrosion inhibitors to protect the fuel system. Gasoline containing more than 5% methanol by volume may cause starting and/or performance problems. It may also damage metal, rubber, and plastic parts of your fuel system.

If you notice any undesirable operating symptoms, try another service station, or switch to another brand of gasoline.

Fuel system damage or performance problems resulting from the use of an oxygenated fuel containing more than the percentages of oxygenates mentioned above are not covered under warranty.

Emission Control System Warranty

Your new Wacker engine complies with the U.S. EPA emissions regulations. Wacker provides the same emission warranty coverage for engines sold in all 50 states.

YOUR WARRANTY RIGHTS AND OBLIGATIONS

All States

Wacker must warrant the emission control system on your engine for the period of time listed below provided there has been no abuse, neglect or improper maintenance of your engine. Where a warrantable condition exists, Wacker will repair your engine at no cost to you including diagnosis, parts and labor.

Your emission control system may include such parts as the carburetor, the ignition system and the catalytic converter.

Also included may be hoses, connectors and other emission-related assemblies.

MANUFACTURER'S WARRANTY COVERAGE:

The 1998 and later engines are warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by Wacker.

OWNER'S WARRANTY RESPONSIBILITY:

As the engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Wacker recommends that you retain all receipts covering maintenance on your engine, but Wacker cannot deny warranty coverage solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the engine owner, you should be aware that Wacker may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your engine to a Wacker dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact your local Wacker dealer.

WARRANTY COVERAGE:

Wacker engines sold after January 1, 1998, are covered by this Emission Control System Warranty for a period of two years from the date of delivery to the original retail purchaser. This warranty is transferable to each subsequent purchaser for the duration of the warranty period.

Warranty repairs will be made without charge for diagnosis, parts or labor. All defective parts replaced under this warranty become property of Wacker. A list of warranted parts is located on the next page. Normal maintenance items, such as spark plugs and filters, that are on the warranted parts list are warranted up to the required replacement interval only.

Wacker is also liable for damages to other engine components caused by a failure of any warranted parts during the warranty period.

Only Wacker approved replacement parts may be used in the performance of any warranty repairs and must be provided without charge to the owner. The use of replacement parts not equivalent to the original parts may impair the effectiveness of your engine emission control system. If such a replacement part is used in the repair or maintenance of your engine, and an authorized Wacker dealer determines it is defective or causes a failure of a warranted part, your claim for repair of your engine may be denied. If the part in question is not related to the reason your engine requires repair, your claim will not be denied.

TO OBTAIN WARRANTY SERVICE:

You must take your Wacker product along with proof of original purchase date, at your expense, to any Wacker authorized dealer during their normal business hours. Claims for repair or adjustment found to be caused solely by defects in material or workmanship will not be denied because the engine was not properly maintained and used.

EXCLUSIONS:

FAILURES OTHER THAN THOSE RESULTING FROM DEFECTS IN MATERIAL OR WORKMANSHIP ARE NOT COVERED BY THIS WARRANTY. THIS WARRANTY DOES NOT EXTEND TO EMISSION CONTROL SYSTEMS OR PARTS WHICH ARE AFFECTED OR DAMAGED BY OWNER ABUSE, NEGLIGENCE, IMPROPER MAINTENANCE, MISUSE, MISFUELING, IMPROPER STORAGE, ACCIDENT AND/OR COLLISION, THE INCORPORATION OF, OR ANY USE OF, ANY ADD-ON OR MODIFIED PARTS, UNSUITABLE ATTACHMENTS, OR THE UNAUTHORIZED ALTERATION OF ANY PART.

THIS WARRANTY DOES NOT COVER REPLACEMENT OF EXPENDABLE MAINTENANCE ITEMS MADE IN CONNECTION WITH REQUIRED MAINTENANCE SERVICES AFTER THE ITEM'S FIRST SCHEDULED REPLACEMENT AS LISTED IN THE MAINTENANCE SECTION OF THE PRODUCT OWNER'S MANUAL, SUCH AS SPARK PLUGS AND FILTERS.

DISCLAIMER OF CONSEQUENTIAL DAMAGE AND LIMITATIONS OF IMPLIED WARRANTIES:

WACKER DISCLAIMS ANY RESPONSIBILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES SUCH AS LOSS OF TIME OR THE USE OF THE POWER EQUIPMENT, OR ANY COMMERCIAL LOSS DUE TO THE FAILURE OF THE EQUIPMENT; AND ANY IMPLIED WARRANTIES ARE LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY. THIS WARRANTY IS APPLICABLE ONLY WHERE THE U.S. EPA EMISSION CONTROL SYSTEM WARRANTY REGULATION IS IN EFFECT.

SYSTEMS COVERED BY THIS WARRANTY	PARTS DESCRIPTIONS
FUEL METERING	CARBURETOR ASSEMBLY
EXHAUST SYSTEM	MUFFLER
AIR INDUCTION	AIR FILTER HOUSING AIR FILTER ELEMENT*
IGNITION	FLYWHEEL MAGNETO IGNITION MODULE SPARK PLUG CAP SPARK PLUG*
MISCELLANEOUS PARTS	TUBING, FITTINGS, SEALS, GASKETS AND CLAMPS ASSOCIATED WITH THESE LISTED ITEMS
* Indicates expendable maintenance items.	



1. Foreword

For your own safety and protection from bodily injuries, carefully read, understand and follow the safety instructions in this manual.

Please operate and maintain your Wacker machine in accordance with the instructions in this manual. Your Wacker machine will reward your attention by giving trouble-free operation and a high degree of availability.

Replace faulty or defective components Immediately.

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2. Safety instructions

for the use of drilling and breaking hammers with combustion engines

2.1 General

- 2.1.1 Drilling and breaking hammers may only be operated by persons who
- * are at least 18 years of age,
 - * are physically and mentally fit for this job,
 - * have been instructed in operating drilling and breaking hammers and proven their ability for the job to the employer
 - * may be expected to carry out the job they are charged with carefully.
- The persons must be assigned the job of operating drilling and breaking hammers by the employer.
- 2.1.2 Drilling and breaking hammers are to be applied for their proper use. Both the manufacturer's operating instructions and these safety instructions have to be observed.
- 2.1.3 The persons charged with the operation of these hammers have to be made familiar with the necessary safety measures relating to the machine. In case of extraordinary uses, the employer shall give the necessary additional instructions.
- 2.1.4 This machine generates noise that exceeds the country-specific permissible noise levels (individual rating level). It may therefore be necessary to wear ear protection.
WACKER recommends that you always wear ear protection.

2.2 Operation

- 2.2.1 The function of operation levers or elements is not to be influenced or rendered ineffective.
- 2.2.2 Before going on breaks, the operator has to switch off the engine and has to place the drilling and breaking hammer in such a manner that it cannot turn over.

Safety instructions

- 2.2.3 Wear safety goggles in order to avoid injuries to the eyes.
- 2.2.4 We recommend wearing suitable working gloves.
- 2.2.5 Wear safety shoes while working with drilling and breaking hammers.
- 2.2.6 Drilling and breaking hammers are always to be operated with both hands on the handles provided for this purpose.
- 2.2.7 When working with drilling and breaking hammers, especially when carrying out drilling jobs, the operator has to have a firm stand, particularly when working on scaffolding and ladders.
- 2.2.8 Drilling and breaking hammers are to be guided such that hand injuries caused by solid objects are avoided. When carrying out demolition jobs at elevated places, special care is required to prevent the machine or the operator from falling.
- 2.2.9 Avoid body contact with earthed components. When breaking connecting passages, make sure that there are no electric wires or gas pipes. No one may stay in the room to which the passage is broken through, as there is danger of injuries because of falling stones or tools.
- 2.2.10 During operation the tool holder must be closed. Tools and tool holder must be checked for wear in order to guarantee proper functioning of holder.
- 2.2.11 The operation of this machine may cause broken - off pieces to be flung away. Therefore, during operation, no one except the operator is to come near this machine.
- 2.2.12 Switch off the engine of drilling and breaking hammers before changing tools.
- 2.2.13 The tools always have to be in perfect conditions.
- 2.2.14 Do not smoke or handle open fire near this machine.



- 2.2.15 The tank lid must fit tightly. Shut fuel cock if available when stopping the engine. For long distance transports of machines operated by fuel of fuel-mixtures, the fuel tank has to be drained competely. Leaky fuel tanks may cause explosions and must therefore be replaced immediately.

- 2.2.16 Stop engine before filling fuel tank. When refilling fuel tank, do not allow fuel to come into contact with the hot parts of the engine or spill onto the ground.

- 2.2.17 Make sure that sufficient fresh air is available when operating drilling and breaking hammers with combustion engines in enclosed areas, tunnels, adits, or deep trenches. For this particular use we offer electrically driven drilling and breaking hammers.

- 2.2.18 Do not operate this machine in areas where explosions may occur.

2.3 Safety checks

- 2.3.1 Drilling and breaking hammers may only be operated with all safety devices installed.

- 2.3.2 Before starting operation, the operator has to check that all control and safety devices function properly.

- 2.3.3 Before starting operation, the overload clutch of drilling hammers has to be checked for proper functioning.

- 2.3.4 In case of defects of the safety devices or other defects reducing the operational safety of the drilling and breaking hammers, the supervisor has to be informed immediately.

- 2.3.5 The machine must to be switched off immediately in case of defects jeopardizing the operational safety of the equipment.

Safety instructions

2.4 Maintenance

- 2.4.1 Only use original spare parts. Modifications to this machine, including the adjustment of the maximum engine speed set by the manufacturer, are subject to the express approval of WACKER. In case of nonobservance all liabilities shall be refused.
- 2.4.2 Stop engine and pull off spark plug cap (if available) before carrying out maintenance jobs, to avoid unintentional starting of the machine. Deviations from this are only allowed if the maintenance job requires a running engine.
- 2.4.3 Take care when checking the ignition system.
The electronic ignition system produces a very high voltage.



- 2.4.4 All safety devices must be reinstalled properly immediately after maintenance and repair jobs have been completed.

2.5 Transport

- 2.5.1 When being transported on vehicles, precautions have to be taken that these hammers do not slip or turn over.

2.6 Maintenance checks

- 2.6.1 According to the conditions and frequency of use, drilling and breaking hammers have to be checked for safe operation at least once a year by skilled technicians, such as those found at WACKER-service depots and have to be repaired if necessary.

Please also observe the corresponding rules and regulations valid in your country.

3. Technical Data

	BH 24		
Item no.	0008937, 0008993, 0008994	0008995, 0610082, 0610083	0008996 with remonte cut-off
Length x width x height (without tool) [mm]	900 - 950 x 450 x 340*		
Operating weight (mass) without tool [kg]	25		
Shaft for breaking tools	ø 27x80 / 28x152 / 28x160		
Percussion rate [min ⁻¹]	1250	1300	
Drive motor	Two-cycle gasoline engine		
Rated output [kW (HP)]	1,7 (2,3)		
Engine speed [rpm]	4250	4400	
Special lubricating grease	Retinax LX2 grease		
Fuel [Oil mixture-gasoline]	1:50 (1:100)		
Fuel consumption [l/h]	0,9		
Tank capacity [l]	2,1		
Sound pressure level LPA at operator's station [dB(A)]	101		
Hand-transmitted vibration (in accordance with EN ISO 5349) [m/s ²]	6	4,9	

*Length depends on shank

Description

4. Description

4.1 Applications

When breaking up concrete and asphalt or soil that is full of boulders, for breaking off in concrete, brickwork and other building materials (overgrown or frozen ground) etc., for tearing up streets and concrete, asphalt, tar, wood and pavement, for paring clay, loam, peat and salts, for crushing soil that has been pressed by vehicles, for ramming in posts and grounding rods with the respective tools. In track laying to pack ballast under railway sleepers.

4.2 Transport to worksite

Requirements:

- * When transporting the Wacker machine, use only suitable hoisting gear with a minimum load-bearing capacity of 30 kg.
- * Always turn off the motor during transportation!
- * When transporting on the cargo area of a vehicle, fasten the Wacker machine.

Note: Also observe the regulations in the chapter **Safety information!**

4.3 Functional description

The drive motor drives the percussion system via gears and connecting system. The torque is transferred non-positively by the centrifugal clutch.

The drive motor works according to the two-cycle principle and is started mechanically via a recoil starter.

Machines with remote cut-off:

The machine is equipped for the connection of a remote cut-off. For further information on the remote cut-off, refer to the manufacturer's operator's manual.

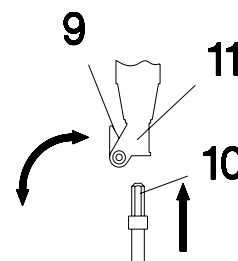
To operate machines without remote cut-off, the shorting plug must be plugged into the connector.

5. Operation

5.1 Starting up

5.1.1 Inserting the tool

- * Swivel out the handle (9) on the tool holder (11).
- * Clean shank (10) and grease slightly.
- * Clean the tool shank (10) and lubricate it a little.
- * Press the handle (9) on the tool holder (11).



Only use sharp tools!

Faulty shanks may damage the percussion system.

5.2 Engine

Fuel

Standard: Two-cycle mixture of oil/fuel at a ratio of 1:50 or, alternatively, 1:100.

Use two-cycle motor oil of the specification NMMA TC-W3, API TC, JASO FC or ISO EGD. *Lead-free fuel can also be used!*

Starting the engine

- * Open the fuel tap.
 - * Cold start: Close the choke.
 - * Warm start: Open the choke.
- Note:** The engine is hand warm or hotter with warm start.
- * Press the gas handle all the way through and hold it (full throttle position).
 - * Pull out the starter rope until compression resistance can be felt and then let it roll back in again.
 - * Pull the starter rope with force, but not suddenly.
 - * As soon as you hear the engine start, open the choke to prevent that too much fuel enters the carburetor.
 - * Pull the starter rope again with force.
 - * The engine starts.

Note: If the engine does not start after another two attempts, close the choke again and repeat the procedure.

- * Let starter rope slowly roll back in.
- * Open the choke while the engine is warming up.

Operation

Note the following with regard to winter operation:

The cold grease in the percussion system may increase the resistance to such an extent that the centrifugal clutch slips. In this case, allow the machine to warm up at low engine speed (do not press the gas handle) to prevent the centrifugal clutch from premature wear.

5.3 During operation

Keep breaker dry and clean. Avoid no-load strokes. Never allow the hammer to run with throttle wide open when forcing away broken or cut off material or when lifting the hammer. When lifting the hammer, the engine is decelerated by releasing the gas lever in the handle.

5.4 After operation

5.4.1 Brief interruption from work

Press short-circuit button.

5.4.2 Finishing the work

Close the fuel tap. Let the motor continue to run until the fuel in the carburetor is used up..

5.4.3 Long break in operation

Clean the hammer. Add anticorrosive oil to the fuel mixture and let the motor run for 5 minutes. Oil the places that are prone to rust.

5.5 Tip for working correctly

5.5.1 Apply the gasoline demolition hammer with the tool to the material to be worked on and press the handle down until the hood locks noticeably into place. Then start operation by pressing the throttle lever.

5.5.2 Pressing forcefully against the surface you are working on does not improve the tool's performance. The pressure force should be sufficient to lock the hood into place, but there should be no contact with the upper and lower stopmounts. Otherwise there will be an increase in hand-transmitted vibrations.

5.5.3 Hold the chisel against the material you are working on so that the material can be chipped off. This prevents the chisel from jamming and the breaking output is increased.

6. Maintenance

6.1 Maintenance schedule

Component	Maintenance work	Maintenance interval
Air filter	Check for external damage and tight fit.	Daily
Fuel	Check the tank seal for leakage - change, if necessary.	
Miscellaneous	Check that Bowden cable moves freely.	
Tools	Check the shanks and cutting edges - if necessary, sharpen, reforge or replace	
Air filter	Check filter element - clean or replace, if necessary.	Weekly
Cylinder	Cooling ribs dirt-free - dry clean if necessary.	
Ignition	Clean the spark plug, check the spark plug air gap is 0.5 mm.	Monthly
Miscellaneous	Check the tool holder for wear - change, if necessary.	
	Regrease via grease nipples.	20 hours
Fuel tank	Clean.	Annually
Fuel filter	Change.	
Fuel line in the tank	Check for porosity and damage - change if necessary	

Maintenance

6.2 Engine

- 6.2.1 Air filter: Clean by knocking or blowing (from inside to the outside), do not use gasoline or similar cleaning agent! Replace filters that are very dirty or that have been used often. Check the filter holder before inserting.
- 6.2.2 Fuel supply and carburetor: Clean the components regularly. Blow through the jets.
- 6.2.3 Spark plug: Clean sooted or wet spark plugs. Check the spark plug air gap (0.5 mm).
- 6.2.4 Ignition: Gap between the fan wheel and ignition armature 0.3 - 0.4 mm.
- 6.2.5 Cylinder: Keep the cooling ribs clean.
- 6.2.6 Starter: Lightly lubricate the bolts after approx. 200 hours in operation.

6.3 Percussion system, crankcase

Lubricante (see technica data)

Lubrication check

- 6.3.1 After 20 hours of operation, the hammer must be lubricated via the lubrication nipple provided with a red mark which is positioned on the crankcase.

7. Malfunction

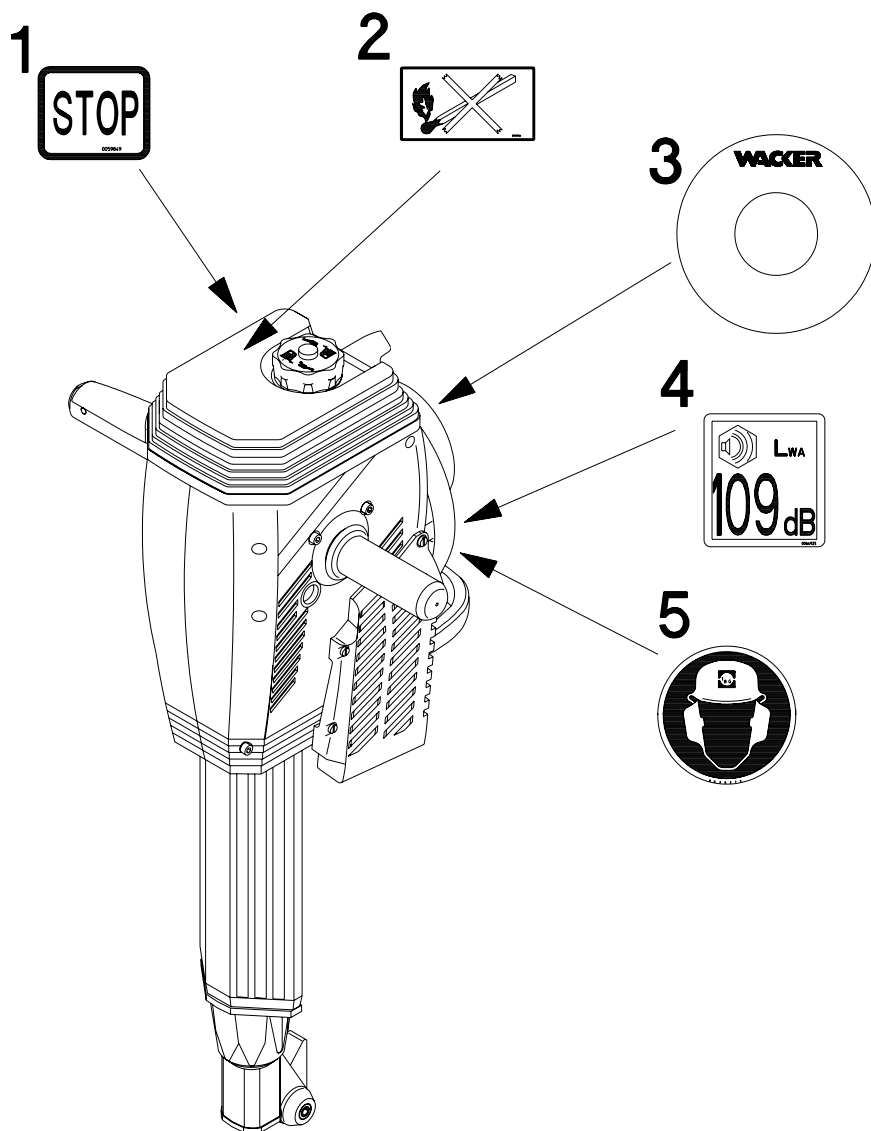
7.1 Troubleshooting

Malfunction for machines with remote cut-off:

Malfunction	Cause	Remedy
Engine will not start.	Shorting plug for remote cut-off not occupied.	Connect remote cut-off.
		Insert shorting plug.
	Remote cut-off is not functioning properly	Check remote cut-off according to the manufacturer's instructions

Signs

8. Signs



- 1 Information label
- 2 Information label
- 3 Information label
- 4 Sound power level label
- 5 Ear protection sign

EC Declaration of Conformity**Wacker Construction Equipment AG, Preußenstraße 41, 80809 München**

certifies that the construction machine:

1. Category:

Demolition hammer

2. Model:

BH 24

3. Machine type number:

0008937, 0008993, 0008994, 0008995, 0008996, 0610082, 0610083

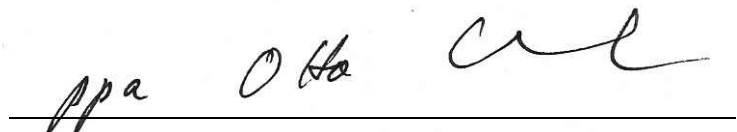
4. Operating weight:

25 kg

was assessed in accordance with the directive 2000/14/EC:

Conformity assessment procedure	At the following notified body	Measured sound power level	Guaranteed sound power level
Annex VIII	VDE Prüf- und Zertifizierungsinstitut Zertifizierungsstelle Merianstraße 28 63069 Offenbach/Main	108 dB(A)	109 dB(A)

and was produced in accordance with the following directives:

* **2000/14/EG*** **89/336/EG*** **98/37/EG**

Dr. Stenzel
Leitung Forschung und Entwicklung
Head of Research and Development

CERTIFICATE

Registration-Number: 6236/QM/06.97

This is to certify that the company

WACKER



**Wacker Construction Equipment AG
Wacker-Werke GmbH & Co. KG**

at the following locations

**Head Office Munich
Preußenstraße 41
80809 Munich**

**Production plant Reichertshofen
Karlsfeld logistics centre
Sales regions with all branches all over Germany**

has implemented and maintains a
Quality Management System for the following scope:

**Machine manufacture
Construction machines**

This Q System complies with the requirements of

DIN EN ISO 9001:2000

and the requirements of the German and international Road Traffic Act.

This Certificate is valid until 2009-06-05.

VDE Testing and Certification Institute
Certification

Date: 2006-05-30

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